

# **EXHIBIT 1**

UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF CALIFORNIA

REARDEN, LLC et al.,

Plaintiff,

vs.

THE WALT DISNEY COMPANY, et  
al.,

Defendants.

No. 4:17-cv-4006-JST

VIRTUAL VIDEOCONFERENCE DEPOSITION OF  
ANGELA TINWELL, Ph.D.  
Friday, December 11, 2020  
Volume I

Reported by:

ALEXIS KAGAY

CSR No. 13795

Job No. 4357522

PAGES 1 - 320

Page 1

1 A No.

2 Q Okay. Dr. Tinwell, what is your field of  
3 study?

4 A My field of study is Human-Computer  
5 Interaction and the Uncanny Valley, that's what I 03:50:28  
6 did my Ph.D. study in.

7 I've worked in the field of design, and I've  
8 worked as a web designer and talked on undergraduate  
9 and post-graduate programs in the areas of creative  
10 technologies, but my field of expertise is viewer 03:50:50  
11 perception of the human-like virtual characters in  
12 games and animation.

13 Q You mentioned your Ph.D. What is -- what  
14 field of study is your degree in, your Ph.D. degree?

15 A My Ph.D. degree is an investigation into the 03:51:06  
16 Uncanny Valley phenomenon and viewer perception of  
17 facial expression in human-like virtual characters.

18 Q So I want to draw a distinction between your  
19 thesis that you wrote for your Ph.D. and the degree.  
20 Do you have the degree, the Ph.D. degree? 03:51:27

21 A I do have my -- my Ph.D. has been awarded,  
22 and I offered a thesis for that. I have an  
23 undergraduate degree.

24 I'm sorry, I'm not quite sure what you mean  
25 by that question. 03:51:44

1 A Yes, I have. I've published in areas of new  
2 culture and game -- understanding -- undergraduate  
3 game students and how they might learn in different  
4 environments, because my job requires me to look at  
5 different fields, but they are within the realm of 03:53:24  
6 creative technology.

7 Q Okay. And have you published in any other  
8 area, areas other than what you just mentioned?

9 A I've published in the articulation of speech  
10 in virtual characters as well as facial expression 03:53:40  
11 and lip synchronization.

12 I also bring into my papers viewer perception  
13 of robots and androids as well because that's  
14 relevant to the uncanny valley.

15 But I don't -- I can't recall that I 03:53:53  
16 published out many other pages outside the areas of  
17 HCI.

18 I've published one, on for example, popular  
19 culture, infatuism, because there was a call for  
20 that, and I thought it was a nice opportunity to 03:54:09  
21 take a break from HCI and the uncanny valley and  
22 look at my -- my skills in different areas, but the  
23 majority of my work has been in HCI.

24 Q Thank you. Are you an expert in MOVA Contour  
25 Technology? 03:54:28

1           A    I am familiar with the MOVA Contour  
2   Technology, and I also to have an above-average  
3   understanding of facial motion capture software.

4           I've never actually used any facial motion  
5   capture software, but I need to understand the           03:54:42  
6   process so that I can talk about it when I'm  
7   providing humanistic guidelines to help design them  
8   on game animation artists and special effect artists  
9   to help them when they're designing their human-like  
10   virtual characters.   03:54:59

11          Q    Yeah, my question was just whether you're an  
12   expert in MOVA Contour Technology.

13           MR. CARLSON:  Objection; asked and answered.

14          BY MS. YOUNG:

15          Q    You can answer the question.   03:55:13

16           And Dr. Tinwell, in these depositions, Mr.  
17   Carlson is entitled to object on behalf of his  
18   client, but you must answer my question unless he  
19   tells you not to, okay?

20          A    I would not be an expert, but I have an   03:55:23  
21   above-average knowledge of facial motion capture  
22   procedure, including MOVA contour.

23          Q    When was the first time you heard about MOVA  
24   Contour Technology?

25          A    It was the -- when I had my first meeting   03:55:37

1 BY MS. YOUNG:

2 Q So Dr. Tinwell, I was trying to understand  
3 which of the sources in Exhibit 2 you relied on to  
4 develop your understanding of MOVA Contour  
5 Technology. 05:25:09

6 Do you remember that's sort of how we got  
7 into this discussion?

8 A We -- yes, I -- I relied on sources. Would  
9 you like me to read the titles out of each one or  
10 the number -- the number for them? 05:25:19

11 Q I think the number is probably sufficient in  
12 Exhibit 2.

13 A I think -- yeah. I relied on -- to help my  
14 understanding of MOVA, it was Document 2, the  
15 patents. The New York Times article, number 3. The 05:25:43  
16 Wall Street Journal article, number 4. The Summary  
17 Judgement on causal-nexus issue, number 5. And the  
18 declaration of Hao Li, number six.

19 Q Okay. Did you rely on anything else on this  
20 list in Exhibit 2 to help you understand how MOVA 05:26:09  
21 Contour Technology works?

22 A I also relied on the talk that Mr. Steve  
23 Perlman gave at Columbia Engineering School number  
24 10. And, finally, the TED Talk, How Benjamin Button  
25 Got His Face, I relied on that as well. 05:26:27

1 that was a system that had been used to capture  
2 into -- yes, to capture Dan Stevens' facial  
3 expression for the film.

4 Q And is that for every shot in which his face  
5 appeared in the film? 06:31:49

6 A I didn't see any -- any other types of  
7 software or methods that had been use to capture Dan  
8 Stevens facial performance.

9 And the way that he talks about it as well  
10 when he is cited in journal -- in newspaper articles 06:32:07  
11 about Beauty and the Beast and what went on and when  
12 he's been interviewed, specifically when he's  
13 speaking, he does only mention the lights that were  
14 around and the makeup that was on and creating the  
15 different facial expressions. 06:32:23

16 Q So were you assuming, for purposes of  
17 offering your opinions, that MOVA Contour Technology  
18 was used every time we see the Beast's face in the  
19 film?

20 A I would say it would be used for the majority 06:32:34  
21 of them, yes, the close-up shots, particularly the  
22 close-up shots where you see the Beast speaking and  
23 where there's scenes between him and Belle, where  
24 there's nonverbal communications. But it's quite a  
25 lengthy scene, both characters are muted, they don't 06:32:54

1 say anything, but there's an moment between them  
2 that the viewer can engage with and understand  
3 what's going on between them, what they're thinking,  
4 what they're doing, and they can understand the  
5 context of the scene and how their relationship is 06:33:09  
6 developing.

7 So it's those types of more intense scenes, I  
8 suppose, where shots -- where you've got the Beast a  
9 long way away or it's not a close-up of his face. I  
10 don't see the MOVA may have been used for those 06:33:23  
11 particular shots.

12 Q But you don't know one way or another?

13 A I would say given the quality, given the high  
14 quality of the facial performance, the facial  
15 expressions and the emoting of the Beauty and the 06:33:39  
16 Beast, I would be -- I would say that it's more  
17 likely that MOVA had been used rather than it all  
18 just being key framing or hand animation or other  
19 methods of capturing that particular facial  
20 expression and emoting for the character. 06:33:57

21 Q So that's an assumption you're making based  
22 on the quality of what you're seeing on the screen?

23 A Yes. Yes.

24 Q And -- and you're saying, it's your  
25 assumptions that every time we see a close up of the 06:34:12



1 Beast's face, MOVA contour was used?

2 MR. CARLSON: Objection; mischaracterizes  
3 testimony.

4 THE WITNESS: I -- my opinion is for close-up  
5 shots particularly of the Beast you'd want to ensure 06:34:29  
6 the best possible outcome for that particular scene  
7 at the least amount of -- with the least amount of  
8 work.

9 So it takes two things. So firstly the least  
10 amount of time to spend on scene, and secondly, the 06:34:41  
11 best possible outcome.

12 So any tools that could be used to help make  
13 the process more efficient, I would state that the  
14 animators and the director would want to use the  
15 best possible methods, namely, MOVA, the facial 06:34:56  
16 action and the facial capturing software would be a  
17 significant tool to use for close-up shots of the  
18 Beast, particularly when they're emoting,  
19 particularly when they're emoting and moving their  
20 face. 06:35:11

21 BY MS. YOUNG:

22 Q So is the answer to my question yes?

23 MR. CARLSON: Objection; asked and answered.

24 THE WITNESS: I would agree with that, yes, I  
25 would agree with that statement. 06:35:19

1 BY MS. YOUNG:

2 Q Okay. Are you an expert in how facial motion  
3 capture technologies other MOVA contour work?

4 A I'm aware of them. I have to have some  
5 awareness of how they work. 06:35:46

6 For example, looking at lower density, facial  
7 capture techniques, I've seen one that was -- if I  
8 recall, there was a particular research students at  
9 the University of Glasgow, and they were using a  
10 very basic facial capture software literally with 06:36:06  
11 markers on the face and creating FACS poses. So I  
12 have actually observed that with professor --  
13 professor -- what was his name now? Professor of  
14 psychology. It will come back to me. Pollick, it  
15 was Frank Pollick who actually created that session 06:36:26  
16 and invited me to go watch it. It was a long time  
17 ago.

18 So that's one that I actually have watched  
19 with professor Frank Pollick who's written about the  
20 uncanny valley, and it was one of the research 06:36:38  
21 students who was using the software. So I've got a  
22 brief understanding of how that works.

23 That was more of a hands-on experience of  
24 facial motion and capture technology, but other than  
25 that with regards to reading, seeing pictures in new 06:36:52

1 media and press articles and new media in the press  
2 articles.

3 And I've also seen performance capture at the  
4 university, where people wear suits, and they  
5 actually have points on their arms because a 06:37:10  
6 research student called Doctor -- I'm not sure if he  
7 got his Ph.D. but Gabriel Naltom (phonetic) was  
8 used, so those are the two instances where I  
9 actually had witnessed the facial capture.

10 I think for the one in Glasgow, they actually 06:37:28  
11 used myself, and I performed some facial expressions  
12 and said different things. And then we actually saw  
13 the CG, what they actually built from it, and I got  
14 sent some of those files.

15 But that was a few years ago when I was doing 06:37:39  
16 my Ph.D., and it was because of the contact I've  
17 made with professor Frank Pollick who was actually  
18 an external examiner at my Ph.D.

19 Q Okay. My question was not whether you were  
20 aware of other facial motion technology. My 06:37:55  
21 question is whether you are an expert in how other  
22 facial motion capture technologies work. Are you or  
23 are you not an expert in how other facial motion  
24 capture technologies work?

25 MR. CARLSON: Objection asked and answered. 06:38:08

1 THE WITNESS: I've got -- I've got a good  
2 understanding of them but not an expert.

3 BY MS. YOUNG:

4 Q Okay. Now you said -- I believe you said  
5 you've only seen facial motion capture technology 06:38:19  
6 used once; is that correct?

7 A Yes.

8 Q Can you give me the names of some of the  
9 facial motion capture technology you're aware of  
10 other than MOVA contour? 06:38:39

11 A The system for example that was used for --  
12 let's have a look. The one that was used for  
13 Tintin. I know the names of the software houses,  
14 it's just not the actual systems themes.

15 For example, Western Digital, they used a 06:39:00  
16 particular system where there before deformations  
17 they were able to manipulate layers underneath the  
18 skin quite effectively for characters in Tintin due  
19 to the deformation of fat and muscle, and they sort  
20 of do like topology approach to that, so I'm aware 06:39:18  
21 that Western Digital did that.

22 I'm aware ImageMovers Digital who worked on  
23 things like Polar Express with Robert Zemeckis, and  
24 then things like Final Fantasy, they actually used  
25 quite a low density marker system, but I don't know 06:39:38

1 the actual name of that. So I'm not aware of the  
2 actual names of the different facial capture  
3 software, but I'm more familiar with the name of the  
4 SFX houses that were working in conjunction with  
5 movie directors because they're the things that I 06:39:52  
6 cite more in the actual papers and books that I  
7 author rather than specific names of software,  
8 etcetera.

9 I don't tend to go into quite such technical  
10 detail. I only go into how the facial and capture 06:40:06  
11 software or motion capture software systems would  
12 work and whether it was high density or low density  
13 and the names of the SFX studios and creating and  
14 developing such instances.

15 Q So I want to ask you a little bit about your 06:40:22  
16 educational background, and I can obviously see it  
17 in your CV, so I'm not going to go through each and  
18 every one of your educational accomplishments.

19 I did want to ask, however, whether any of  
20 your studies involved courses in developing CG 06:40:37  
21 characters.

22 A Not specifically, no. The closest that I've  
23 come to that is games op and games design. So I've  
24 worked with undergraduate game students where they  
25 have do have to create human-like characters and 06:40:53

1 monster characters and cartoon-like characters, so  
2 the whole spectrum of uncanny valley.

3 I've worked with illustrators as well where  
4 they are creating characters so from paper to photo  
5 shop or 2D software system to 3D software system 06:41:09  
6 things like Mayor, Zen Brush (phonetic), other  
7 software systems like that, so yes, I have.

8 I've not developed the courses myself, but  
9 I've assisted on modules where students are  
10 developing characters for video games and in SFX for 06:41:28  
11 movies and videos as well.

12 Q Okay. So again, I -- I know this is hard,  
13 but I'm trying to get clear answers to my questions,  
14 and I want to unpack that a little bit.

15 So focusing on your own studies, things you 06:41:43  
16 have studied in your own educational background,  
17 have you taken any courses in developing CG  
18 characters? It's a yes or no question.

19 MR. CARLSON: Objection; asked and answered.

20 THE WITNESS: I haven't created any CG 06:42:00  
21 characters myself on the courses that I've taken.

22 BY MS. YOUNG:

23 Q Okay. Now, you also talked about helping out  
24 your students; is that right?

25 A Yes. 06:42:13

1 output, and let's mark that screenshot as our next  
2 exhibit.

3 Mr. Nickels, that's tab 55, and the exhibit  
4 will be 1017.

5 MR. NICKELS: 1017 is now marked and 07:53:17  
6 available in the "Marked Exhibits" folder.

7 (Exhibit 1017 was marked for identification  
8 by the court reporter and is attached hereto.)

9 BY MS. YOUNG:

10 Q Okay. And this one I may actually have in 07:53:27  
11 your binder, so if you want to look at it on paper,  
12 it's -- it should be tab 55 in your binder, but feel  
13 free to do whatever is easier for you.

14 A I'm looking at it on screen. Tab number 5 is  
15 a live action Beauty and the Beast -- 07:54:08

16 Q Sorry. Tab 55. I'm sorry. I probably  
17 cutoff there.

18 A Yes, thank you. Yes. Yes. Got it. Thank  
19 you.

20 Q Okay. And that's an image -- that's a still 07:54:28  
21 image of what you were just describing as where you  
22 think the MOVA tracked mesh output is depicted in  
23 the DD3 video; is that right?

24 A Yes, yes.

25 Q Okay. And do you see in this -- in this 07:54:47

1 exhibit, there's sort of a purple mesh over Dan  
2 Stevens' face in the second image from the left?

3 A I do.

4 Q And do you see that the bulges that you  
5 identified underneath his eyes is not covered by 07:55:00  
6 that purple mesh?

7 A They're not --

8 MR. CARLSON: Objection; argumentative.

9 THE WITNESS: The cheek aperture is. So the  
10 animator should -- if anything is going to be done, 07:55:10  
11 the animators will see that the cheek's been lifted  
12 at that point, and so they -- the area below the eye  
13 should be scrunched, it shouldn't be flat at that  
14 point.

15 So MOVA is providing the roadmap to show the 07:55:25  
16 animator which areas need to be scrunched, deformed  
17 in any particular way and so it does capture the  
18 area around the eye as well to show there are  
19 creases there that are being formed because the  
20 cheek's rising. 07:55:44

21 And so any animator that studied anatomy or  
22 is aware of this, would see this footage of Dan  
23 Stevens originally, it's providing quite a good  
24 roadmap to point how, okay, that needs -- that needs  
25 to be filled in just there, filled out the bulge in 07:56:02



1 there.

2 But the crows feet and the fact that it's

3 risen on that right side shows the animator, it

4 provides to them clearly what they need to do, so

5 they're not starting from scratch. They've got a 07:56:15

6 good underpinning to actually see how to create the

7 genuine smile in the Beast.

8 BY MS. YOUNG:

9 Q Right. But the purple mesh does not actually  
10 cover the bulges underneath the eye, does it? 07:56:28

11 A It doesn't --

12 MR. CARLSON: Objection; asked and answered,  
13 argumentative.

14 THE WITNESS: It doesn't cover under the eye,  
15 but it's a very good actual depiction of the raised 07:56:40  
16 cheek and the actual crows feet by the side of it  
17 the has been captured that shows the animator that  
18 really the animator should produce a bulge, it  
19 shouldn't be flat.

20 And animators should know that, they should 07:56:58  
21 be mindful of the fake smile, the smile and what  
22 they may need to do to prevent that, to help prevent  
23 it.

24 So it does I would say capture a good  
25 proportion of Dan's face to show the types of smile, 07:57:13

1           So for -- you could, if you had quite a  
2       specialized group sample group, who may have a very  
3       rare condition, and it was difficult to get more  
4       than 30 participants, then you may use a rare  
5       statistical analyses rather than traditional things       09:26:30  
6       like persons, correlations, there may be other  
7       inferential statistics or analyses that allow you to  
8       use small sample sets, but that's in, for example,  
9       testing people with certain impairments or with  
10      special needs, and that's where I would see where a       09:26:50  
11      small sample set might be acceptable.

12       Q     Okay. But let's say you don't have any of  
13      those -- those limitations.

14           Is a sample size lower than 30 typically  
15      acceptable in your field when you want to draw a       09:27:04  
16      conclusion about a broader population?

17       A     I would -- if I was reviewing a paper, I  
18      would question that. I would question it.

19       Q     Now, for purposes of providing your opinions  
20      in this case, you did not conduct any experiment,       09:27:21  
21      did you?

22       A     If I had conducted an experiment, I would  
23      have liked to have got the Beast character, and I  
24      would have liked to perhaps have Dan Stevens, the  
25      fully animated Beast, and then the lack version of       09:27:34

1 the Beast where movement was disabled in his upper  
2 face or perhaps even an over articulation of mouth  
3 movement, which is an overexaggeration of movement  
4 to the lower face, where you modify that particular  
5 experimental condition to create these more profound 09:27:52  
6 stimuli, the -- people are sensitive to the uncanny,  
7 and I would have compared the fully animated Beast,  
8 the controlled Dan Stevens, and then the lack or the  
9 over articulated Beast character to see which one  
10 was regarded as the strangest, most human-like, most 09:28:11  
11 friendly and most profound, most, say, threatening.

12 Those -- that's what -- that's how I would  
13 have really liked to have done an experiment, but I  
14 didn't conduct any experiments in my report, no.

15 Q Why didn't you conduct any experiments? 09:28:31

16 A It was partly to do with the time that I was  
17 -- that I had for this particular study, and really,  
18 I was asked based on the research that I had done  
19 looking at characters, looking at facial  
20 expressions, nonverbal expressions, to give my 09:28:53  
21 opinion as to whether the Beast did authentically  
22 communicate human-like emotion based on the body of  
23 work that I'd already done on the uncanny valley.

24 It would, again, have just been a repeat of  
25 the experiments that I had already done, and I would 09:29:11

1 have expected the same outcome in the characters  
2 where movement was disabled or balance in their face  
3 or even in the lower face would have been regarded  
4 as strange and more uncanny.

5 So I -- I think that the actual purpose of an 09:29:27  
6 experiment in this particular case, there was -- I  
7 would be surprised if the results had shown anything  
8 different from the human being regarded as most  
9 human-like and familiar and perhaps likable, the  
10 fully animated character, then following that, and 09:29:43  
11 then the liked character being regarded as the most  
12 strange, the most uncanny with people struggling to  
13 identify accurately the emotion that was being  
14 communicated in that particular character.

15 So I don't think that the experiments with 09:30:00  
16 the Beast would have helped leave much more useful  
17 information.

18 It was more a question of me looking at the  
19 Beast and thinking does he really convince us that  
20 there is a human there and how we actually see Dan 09:30:14  
21 Stevens and his idiosyncrasies and behaviorisms in  
22 the Beast and that was -- that was why I was used  
23 and why I authored my report for this. So that was  
24 the purpose of it.

25 And that was really why I didn't see the 09:30:32

1 2004, The Polar Express?

2 A Yes.

3 Q Okay. And that was before the advent of MOVA  
4 Contour Technology; right?

5 A Yes. 10:27:41

6 Q And in your book, you describe The Polar  
7 Express as a renowned harbinger of the uncanny  
8 valley in children's animation. Do you recall  
9 writing that?

10 A Yes. 10:27:50

11 Q So you had done the research on Polar Express  
12 for your book; correct?

13 A Yes, yes.

14 Q But you chose not to mention The Polar  
15 Express in your declaration; right? 10:28:02

16 A I think I may. I'm sure The Polar Express is  
17 mentioned somewhere. It wasn't one of the four  
18 highlighted films.

19 Let me see. I don't think -- I don't think I  
20 focused on that as a particular case study. No, no 10:28:20  
21 not in my declaration.

22 Q The film The Polar Express actually did quite  
23 well with audiences, didn't it?

24 A It did. It did. It had quite a strong first  
25 release in the cinema, but I -- in thinking about 10:28:37

1 that, I would say it was based on a best selling  
2 children's novel at the time. It had a good strong  
3 character, Tom Hanks, that was very popular, and I'm  
4 sure that adults would have wanted to see as well as  
5 children, and it was -- it's is a Christmas movie. 10:28:55

6 And if you compare it, for example, to  
7 something like Home Alone, it may have had a good  
8 short term financial outcome and a good  
9 profitability in a short term.

10 But if you compare it to things like A 10:29:11  
11 Christmas Carol, Home Alone, those are movies that  
12 people will look to to actually play time and time  
13 again in the Christmas season, whereas, I don't see  
14 many people thinking, oh, we'll have The Polar  
15 Express again, we'll play that again this year, and 10:29:28  
16 we'll repeat that one or buy that for my  
17 grandchildren, I'll download that for my  
18 grandchildren.

19 And I think it is because of the renowned  
20 negative implications of the characters in that film 10:29:40  
21 with the uncanny valley. It doesn't seem to be as  
22 popular long term as other Christmas movies have  
23 been, for example, and I think that that was  
24 hopefully -- that that might have been their  
25 objective, so it would be played as a favorite of 10:29:58

1 Christmastime, with it being a specific Christmas  
2 movie based on a children's novel.  
3 But I can't say that it's had long term  
4 success from people wanting to re-watch that film or  
5 share it with their family. 10:30:13

6 Q Okay. Let's take a look at what we've marked  
7 as -- we have as tab four in your -- well, before we  
8 go there, Dr. Tinwell, one of the documents that you  
9 cite in your exhibits is materials you consulted in  
10 connection with preparing your report -- let me get 10:30:38  
11 the name of it here. It's Thompson 2016. It's on  
12 the last page of your exhibit, Exhibit 3.

13 A Yes. Thompson 2016, "The Highest-Grossing  
14 Christmas Movies of all Time," yes.

15 Q And that was an article that was published in 10:31:08  
16 Forbes Magazine?

17 A Yes.

18 Q That was --

19 A Yeah.

20 Q That was something you considered when you 10:31:13  
21 were putting together your declaration?

22 A Yes, yes.

23 MS. YOUNG: Let's now take a look at that.

24 If you look at tab four in your -- I'm sorry, if you  
25 look at tab four in your binder, Mr. Nickels, can we 10:31:27

1 authoring the Financial Cost section of your  
2 declaration?

3 MR. CARLSON: Dr. Tinwell, you'll have to  
4 take time to read the documents.

5 THE WITNESS: I'm reading those. I'm reading 10:49:25  
6 those. I'm on AT00004.

7 MR. CARLSON: Well, begin with 1 and go to  
8 the end to answer the question.

9 THE WITNESS: Okay.

10 MR. CARLSON: She's asked if there's any 10:49:37  
11 other entries.

12 THE WITNESS: Okay.

13 BY MS. YOUNG:

14 Q And just so you have it in mind, I'm just  
15 interested in whether you see any other entries in 10:49:45  
16 these timesheets that reflect work you spent writing  
17 the Financial Cost section of your declaration.

18 A Those are the two entries that I can see  
19 there, yes.

20 Q Okay. And did the hours you recorded to 10:51:19  
21 draft the Financial Cost section of your declaration  
22 also include the time you spent researching that  
23 section of your declaration?

24 A It did, yes, yes.

25 Q Okay. So are there -- so it was three hours 10:51:31



1 to both research and write the Financial Cost  
2 section of your declaration?

3 A I had already primarily done some work on  
4 this with my book, so I've written something along  
5 these lines, and I -- I chose to format my 10:51:50  
6 declaration report in a similar format to my book,  
7 and my book took quite awhile to do.

8 So I was building my declaration report off  
9 my book, and I had taken a lot longer, I suppose, to  
10 write the initial chapter, and the initial ideas in 10:52:11  
11 the book than pulling that information and looking  
12 at that for this declaration.

13 So in some ways, I've spent less time on the  
14 declaration report, but I had already put, I would  
15 say, a years work, if not longer, on that 10:52:28  
16 particular -- not on that particular section in the  
17 book, but I would say that I had spent a lot longer  
18 on that particular chapter in my book thinking about  
19 that and the financial implication and negative  
20 impact it can have on films in my book chapter, and 10:52:45  
21 I was just revising that and looking, thinking if  
22 anything was relevant from that that I could then  
23 paraphrase and introduce into this declaration  
24 report.

25 So a lot of the background research, I 10:52:58

1 suppose, I'd already spent the time on that, doing  
2 that particular research, and that's why I think  
3 Mark contacted me, and probably only the one of the  
4 reasons why, because a lot of the content from my  
5 report was already there in the book itself. It was 10:53:14  
6 just a question of looking at the Beast character in  
7 a lot more detail, spending time and perseverance on  
8 that Beast character, so to look at him and address  
9 the issues at hand.

10 Q Okay. So did it take three additional hours 10:53:29  
11 to take the learning you already had and then  
12 write-up and incorporate that learning, any  
13 additional research, and then write out the  
14 Financial Cost section of your report?

15 A Yes. 10:53:46

16 Q Okay. Did you do additional research besides  
17 what you had already done for your book to draft the  
18 Financial Cost section of your report?

19 A I did look at some figures in Internet Movie  
20 Database and where I could find the information, so 10:54:04  
21 I was checking as I was writing and checking the  
22 resources that I had. But I primarily based it on  
23 the information that I previously did in my book.

24 Q Did you do any research to see if there were  
25 any examples that might disprove your hypothesis 10:54:21

1 "The sheer undifferentiated flesh  
2 of a metallic sheen that it looks as  
3 if it would ring if you tapped it.

4 "They don't look like youngsters  
5 as such, more like robot replicants 12:07:15  
6 from Planet West World."

7 That is a description of the uncanny, isn't  
8 it?

9 A That would have connotations with the  
10 descriptions of the uncanny, but primarily, I think 12:07:26  
11 Benjamin Button was to do more with the older  
12 depiction of Brad Pitt.

13 That was going to be the challenge, getting  
14 him to age. So I would suspect that most of the  
15 time the production time and budget went on the 12:07:42  
16 older characters of Benjamin Button, where it got --  
17 those are actually quite good, but perhaps less time  
18 was spent on the younger versions, and that might  
19 have been a detriment to the movie, if more time was  
20 invested in the older type characters. 12:08:02

21 But it has been acknowledged that they were  
22 good characters, but perhaps the younger versions  
23 were less important or less significant in the film  
24 if less time might have been spent on them.

25 But unfortunately, it shows that potentially 12:08:21

1 less time spent on the character, then the uncanny  
2 can occur.

3 Q Okay. And that's even when you're using MOVA  
4 Contour Technology; right?

5 A Yes. 12:08:36

6 Q And, in fact, you don't know how much time  
7 was spent on the characters, whether they were old  
8 or whether they were young; correct?

9 A Yes.

10 Q And this article talks about Brad Pitt being 12:08:45  
11 in his 20s; correct?

12 A Yes.

13 Q Brad Pitt was not 20 years old when this  
14 movie was made, was he?

15 A No. 12:08:56

16 MS. YOUNG: Let's move on. Tab 31.

17 And Mr. Nickels, let's mark this as the next  
18 exhibit, please.

19 MR. NICKELS: That will be 1026.

20 (Exhibit 1026 was marked for identification 12:09:22  
21 by the court reporter and is attached hereto.)

22 BY MS. YOUNG:

23 Q Okay. So we're looking at 1026, and this is  
24 a review of Benjamin Button published in New York  
25 Times. Do you see that, Dr. Tinwell? 12:09:32

1 experiments and feedback that I got from  
2 participants in my experiments and looking at other  
3 uncanny films and the associations of why they've  
4 been made with other characters.

5 And it was to really grasp an understanding 12:17:10  
6 for myself as to whether -- what the Beast was  
7 trying to do in the movie and whether they were  
8 successful in doing that, whether we could see Dan  
9 Stevens or not. So that was primarily what my  
10 report was based on. 12:17:25

11 BY MS. YOUNG:

12 Q You've ever never shown a participant in one  
13 of your studies the Beast and asked them to give you  
14 feedback on what he looks like; right?

15 A No, I haven't, no. 12:17:40

16 Q Okay. So your opinions about the Beast being  
17 able to evoke human emotion is based on your  
18 subjective review of the movie; is that right?

19 A Correct. I -- I have based that on, for  
20 example, the research that I've done in my book, the 12:17:57  
21 research, for example, on FACS, Ekman's work on  
22 facial expression, knowledge of the uncanny valley  
23 itself and where monsters actually reside in that.

24 The positioning of the Beast and where  
25 viewers may position him at the beginning compared 12:18:15

1 to the end. So it was more of the analysis that I  
2 was directing in my report, thinking about the  
3 theory of the uncanny valley and where characters  
4 have been plotted on that, and then what the Beast  
5 was trying to achieve at the end of it, and whether 12:18:34  
6 I could perceive that it had actually -- the Beast  
7 had actually done that.

8 Q So one person's experience in viewing Beauty  
9 and the Beast doesn't explain how everybody felt  
10 when they watched the movie; right? 12:18:48

11 A No.

12 MR. CARLSON: Objection; argumentative.

13 BY MS. YOUNG:

14 Q Other people may have had a different  
15 experience than you did to seeing the Beast in the 12:18:56  
16 movie; right?

17 A Yes.

18 Q And you didn't try to figure out how anyone  
19 else actually responded to the Beast in the movie,  
20 did you? 12:19:04

21 A No.

22 MS. YOUNG: Let's take a look at tab 35, and  
23 we'll mark this as exhibit -- I'm sorry my Exhibit  
24 Share is refreshing.

25 MR. NICKELS: 1028. 12:19:22

1 and also taking into considerations monetary budgets  
2 and time that MOVA would have presented a good  
3 solution at that time to actually work on the Beast.

4 And I can't see -- can't think of any other  
5 technologies that would -- other than actually just 01:16:15  
6 hand rendering and key framing that particular  
7 character with the animators. But that, I think,  
8 would have taken the movie over budget.

9 Q You don't know that, Dr. Tinwell, right,  
10 you're just speculating about that? 01:16:31

11 MR. CARLSON: Objection; argumentative,  
12 mischaracterizes testimony.

13 BY MS. YOUNG:

14 Q Did you do anything to research the budget  
15 for Beauty and the Beast? 01:16:39

16 A No.

17 Q Did you review any documents or deposition  
18 testimony or declarations talking about the budget  
19 for Beauty and the Beast?

20 A No. 01:16:50

21 Q Did you review any documents or depositions  
22 or declarations from anyone talking about whether  
23 the use of MOVA Contour Technology had an effect on  
24 the budget one way or another?

25 A I -- not -- from what I've read about MOVA, 01:17:04

1 it expedites the process of creating CG characters  
2 for animators because they get the content for free.  
3 They're given the roadmap as to how an actor  
4 emotes and expresses him or herself, and that could  
5 then be regenerated into either a CG replica of that 01:17:32  
6 character or a character that you want to depict  
7 idiosyncrasies and characteristics of that original  
8 actor.

9 Q Did you review any documents or deposition  
10 testimony or declaration testimony from anyone 01:17:48  
11 actually involved in making Beauty and the Beast who  
12 said that MOVA Contour technology saved them money?

13 A No.

14 Q Did you see any documents or deposition  
15 testimony or declaration testimony from anyone 01:18:03  
16 involved in making Beauty and the Beast that using  
17 MOVA Contour Technology saved them time?

18 A No.

19 Q How many fewer people would have gone to see  
20 Beauty and the Beast if MOVA Contour Technology had 01:18:30  
21 not been used to create the Beast?

22 A I don't know.

23 Q Ten fewer people?

24 MR. CARLSON: Objection; calls for  
25 speculation. 01:18:43



1 I, ANGELA TINWELL, Ph.D., do hereby declare  
2 under penalty of perjury that I have read the  
3 foregoing transcript; that I have made any  
4 corrections as appear noted, in ink, initialed by  
5 me, or attached hereto; that my testimony as  
6 contained herein, as corrected, is true and correct.

7 EXECUTED this 10th day of January,  
8 2021, at Chester, UK.  
9 (City) (State)

10  
11  
12  
13 A. Tinwell

14 ANGELA TINWELL, Ph.D.

15 VOLUME I  
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Page 319

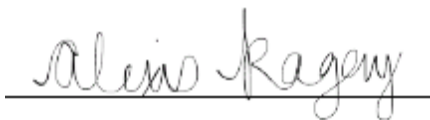
1  
2  
3 I, the undersigned, a Certified Shorthand  
4 Reporter of the State of California, do hereby  
5 certify:

6 That the foregoing proceedings were taken  
7 before me at the time and place herein set forth;  
8 that any witnesses in the foregoing proceedings,  
9 prior to testifying, were placed under oath; that a  
10 record of the proceedings was made by me using  
11 machine shorthand which was thereafter transcribed  
12 under my direction; further, that the foregoing is  
13 an accurate transcription thereof.

14 I further certify that I am neither  
15 financially interested in the action nor a relative  
16 or employee of any attorney of any of the parties.

17 IN WITNESS WHEREOF, I have this date  
18 subscribed my name.

19  
20 Dated: December 14, 2020

21   
22

23 ALEXIS KAGAY

24 CSR NO. 13795  
25